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ing his report to insects affecting shade trees. He also records the result of observations made in 1899.

Messrs. Henry Holt & Co. publish (New York, 1899) a new issue of Scudder's *Brief Guide to the Commoner Butterflies of the Northern United States and Canada*. The text shows but slight change from the original of 1893. The illustrations, borrowed from other works, are new to this issue, and give, with varying success, figures of the eighty-four species treated in the text.

"The Recognition of the Poisonous Serpents of North America," an address with a demonstration to the graduating class in the medical school, before the Johns Hopkins Medical Society, by Professor Howard A. Kelly, is printed in the *Bulletin of the Johns Hopkins Hospital*, Vol. X, No. 105. Figures of six snakes, three poisonous species and three harmless species, illustrate the paper. The disadvantages under which a physician labors when dealing with a purely zoölogical subject are clearly shown in the text.

BOTANY.

An Experimental Botany.—Teachers who believe in approaching the study of plants from the physiological point of view will welcome Dr. MacDougal's latest guide.¹ The book is intended for the use of beginners who have not the facilities of a laboratory. Only a hand magnifier and such apparatus as may be extemporized readily with the aid of household articles are required in the observations and experiments to which the student's attention is directed. It will be a surprise to many teachers to find how fully the more important general principles of plant physiology may be illustrated by these simple experiments, while the young people who perform the experiments cannot fail to be delighted with what they will witness, and be led to valuable general ideas of plant life. The book abounds in fresh and inspiring suggestions.

It must be said, however, that users of the book are assumed to have acquired sufficient knowledge of systematic botany and facility

¹ MacDougal, Daniel Trembly, Ph.D., Director of the Laboratories, New York Botanical Garden. *The Nature and Work of Plants: an Introduction to the Study of Botany*. New York, The Macmillan Company, 1900. Cloth, 12 mo. xvii + 218 pp.

in the determination of species to enable them to make ready use of such works as *Gray's Manual* and *Britton and Brown's Flora*. No help in learning how to analyze is here afforded, although the student is expected to determine during the course a considerable number of plants. To call the book "An Introduction to the Study of Botany" would seem to be, therefore, somewhat misleading.

The prominence given to physiological matters leaves opportunity for but scant consideration of the form and structure of parts — scarcely enough, it would seem, for a full understanding of the text, except on the supposition that the student is receiving or has received supplementary instruction. Some of the morphological statements call for correction. Thus we find fruit defined as "the seed and all parts of the ovary adhering to it" (p. 155) — a strangely inadequate definition, which is contradicted by the statement (on p. 176) that the "fruit of the apple is composed of portions derived from all the organs of the flower." It seems strange, also, to find such an unqualified statement of this old notion of the apple's morphology, in view of the simpler modern theory now generally adopted.

As regards physiological matters the treatment leaves but little to be desired. One statement, however, would seem to require modification, namely, where it is said (on p. 45) that the spongy layer enveloping the roots of air plants will "gather water from the air when it is humid and damp." The careful experiments to test this matter by R. G. Leavitt, detailed in *Rhodora* for February and March, 1900, make it appear highly improbable that aërial roots ever have this power of absorbing watery vapor which has been frequently ascribed to them on meager evidence.

In spite of its defects, which are not likely to prove of much consequence where there is a good teacher, the book is sure to rank well among recent helps to the study of plants as living things.

F. L. S.

Prantl's Lehrbuch.¹ — The new edition of Prantl's excellent text-book of botany follows essentially the same lines as the last edition, the chief modifications consisting of a general expansion which amounts to about fifty pages. Numerous changes and additions in the matter of illustration have resulted in an increase of twenty-seven cuts. Several of these new cuts illustrate the micro-

¹ Prantl. *Lehrbuch der Botanik*, herausgegeben und neugearbeitet von Dr. Ferdinand Pax. Elfte, verbesserte und vermehrte Auflage. Leipzig, Engelmann, 1900. 456 pp., 414 figs.